

Ethyl Ether  
08980

\*\*\*\* SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION \*\*\*\*

MSDS Name: Ethyl Ether

Catalog Numbers:

AC410040000, AC410040025, AC410045000, AC611010190, S73990, S73990ANES-1,  
S73990ANES-2, E135 1, E135 20, E135 4, E1351, E13520, E1354, E136 1,  
E136 150, E136-1, E136-150, E1361, E136150, E188, E188-20, E188-4, E188-  
500

S17573MF

Synonyms:

Ethane, 1,1'-Oxybis-; Anaesthetic Ether; Anesthesia Ether;  
Diaethylaether; Diethyl Ether; Ethoxyethane. \* Diethyl oxide

Company Identification: Fisher Scientific  
1 Reagent Lane  
Fairlawn, NJ 07410

For information, call: 201-796-7100

Emergency Number: 201-796-7100

For CHEMTREC assistance, call: 800-424-9300

For International CHEMTREC assistance, call: 703-527-3887

\*\*\*\* SECTION 2 - COMPOSITION, INFORMATION ON INGREDIENTS \*\*\*\*

CAS#	Chemical Name	%	EINECS#
60-29-7	Ethyl ether	> 98	200-467-2

Hazard Symbols: F+  
Risk Phrases: 12 19

\*\*\*\* SECTION 3 - HAZARDS IDENTIFICATION \*\*\*\*

EMERGENCY OVERVIEW

Appearance: APHA: 10 max. Flash Point: -45 deg C.

Danger! Extremely flammable liquid. Harmful if absorbed through the skin. Hygroscopic. Light sensitive. Air sensitive. May be harmful if swallowed. May cause central nervous system depression. Aspiration hazard. May cause kidney damage. May form explosive peroxides. Causes eye and skin irritation. Causes digestive and respiratory tract irritation. May be habit forming.

Target Organs: Kidneys, central nervous system, liver, respiratory system, skin.

Potential Health Effects

Eye:

Causes moderate eye irritation. Causes redness and pain.

Skin:

Harmful if absorbed through the skin. May be absorbed through the skin. Causes severe skin irritation and possible burns.

Ingestion:

Aspiration hazard. Symptoms may include: headache, excitement, fatigue, nausea, vomiting, stupor, and coma. May cause central nervous system depression, characterized by excitement, followed by headache, dizziness, drowsiness, and nausea. Advanced stages may

cause collapse, unconsciousness, coma and possible death due to respiratory failure. Aspiration of material into the lungs may cause chemical pneumonitis, which may be fatal. May be harmful if swallowed.

Inhalation:

Vapors may cause dizziness or suffocation. May be absorbed through the lungs. Causes irritation of the mucous membrane and upper respiratory tract. Inhalation may cause irritation of the nose and throat, vomiting, irregular respiration, dizziness, drowsiness, unconsciousness and possible death due to respiratory paralysis

Chronic:

Prolonged or repeated skin contact may cause defatting and dermatitis. Prolonged or repeated exposure can cause psychic abnormalities such as anxiety, depression and excitability. Laboratory experiments have resulted in mutagenic effects. May cause kidney damage. Prolonged exposure to high vapor concentrations may cause eye injury.

\*\*\*\* SECTION 4 - FIRST AID MEASURES \*\*\*\*

Eyes:

Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical aid.

Skin:

Get medical aid immediately. Immediately flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse.

Ingestion:

Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Possible aspiration hazard. Get medical aid immediately.

Inhalation:

Remove from exposure to fresh air immediately. If breathing is difficult, give oxygen. Get medical aid. DO NOT use mouth-to-mouth respiration. If breathing has ceased apply artificial respiration using oxygen and a suitable mechanical device such as a bag and a mask.

Notes to Physician:

Persons with kidney disease, chronic respiratory disease, liver disease, or skin disease may be at increased risk from exposure to this substance. Alcoholic beverage consumption may enhance the toxic effects of this substance. Treat symptomatically and supportively.

\*\*\*\* SECTION 5 - FIRE FIGHTING MEASURES \*\*\*\*

General Information:

As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Vapors may form an explosive mixture with air. Vapors can travel to a source of ignition and flash back. Extremely flammable. Material will readily ignite at room temperature. Use water spray to keep fire-exposed containers cool. Water may be ineffective. Material is lighter than water and a fire may be spread by the use of water. Containers may explode in the heat of a fire. May form explosive peroxides. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

Will be easily ignited by heat, sparks or flame. May re-ignite after fire is extinguished.

**Extinguishing Media:**

For small fires, use dry chemical, carbon dioxide, water spray or alcohol-resistant foam. Water may be ineffective. For large fires, use water spray, fog or alcohol-resistant foam. Do NOT use straight streams of water. Cool containers with flooding quantities of water until well after fire is out.

\*\*\*\* SECTION 6 - ACCIDENTAL RELEASE MEASURES \*\*\*\*

General Information: Use proper personal protective equipment as Indicated in Section 8.

**Spills/Leaks:**

Avoid runoff into storm sewers and ditches which lead to waterways. Remove all sources of ignition. Absorb spill using an absorbent, non-combustible material such as earth, sand, or vermiculite. Use a spark-proof tool. Place under an inert atmosphere. A vapor suppressing foam may be used to reduce vapors.

\*\*\*\* SECTION 7 - HANDLING and STORAGE \*\*\*\*

**Handling:**

Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well ventilated area. Ground and bond containers when transferring material. Do not breathe dust, vapor, mist, or gas. Do not get in eyes, on skin, or on clothing. Empty containers retain product residue, (liquid and/or vapor), and can be dangerous. Take precautionary measures against static discharges. Keep container tightly closed. Avoid contact with heat, sparks and flame. Do not ingest or inhale. Store protected from light. Handle under an inert atmosphere. Store protected from air. If peroxide formation is suspected, do not open or move container. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose empty containers to heat, sparks or open flames.

**Storage:**

Keep away from heat, sparks, and flame. Keep away from sources of ignition. Do not store near combustible materials. Do not store in direct sunlight. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Flammables-area. Refrigerator (approx 4°C). Do not expose to air. Store protected from moisture. Store protected from light. Store under an inert atmosphere. Keep away from oxidizing agents.

\*\*\*\* SECTION 8 - EXPOSURE CONTROLS, PERSONAL PROTECTION \*\*\*\*

**Engineering Controls:**

Use explosion-proof ventilation equipment. Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA-FinalPELs
Ethyl ether	400 ppm; 500 ppm STEL	no established RELs - see Appendix D 1900 ppm IDLH (10 percent lower explosive limit)	400 ppm TWA; 1200 mg/m3 TWA

OSHA Vacated PELs:

Ethyl ether:

400 ppm TWA; 1200 mg/m3 TWA

Personal Protective Equipment

Eyes:

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:

Wear appropriate protective gloves to prevent skin exposure.

Clothing:

Wear appropriate protective clothing to prevent skin exposure.

Respirators:

A respiratory protection program that meets OSHA's 29 CFR §1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant a respirator's use.

\*\*\*\* SECTION 9 - PHYSICAL AND CHEMICAL PROPERTIES \*\*\*\*

Physical State: Clear liquid  
 Appearance: APHA: 10 max  
 Odor: sweetish odor - aromatic odor  
 pH: Not available.  
 Vapor Pressure: 442 mm Hg @ 20C  
 Vapor Density: 2.55 (Air=1)  
 Evaporation Rate: 37.5 (Butyl acetate=1)  
 Viscosity: 0.2448 cp @ 20C  
 Boiling Point: 34.6 deg C  
 Freezing/Melting Point: -116.3 deg C  
 Autoignition Temperature: 180-190 deg C  
 Flash Point: -45 deg C ( -49.00 deg F)  
 NFPA Rating: (est.) Health: 1; Flammability: 4; Reactivity: 1  
 Explosion Limits, Lower: 1.9 vol %  
                           Upper: 36.0 vol %  
 Decomposition Temperature:  
 Solubility: Slightly soluble.  
 Specific Gravity/Density: 0.7110g/cm3  
 Molecular Formula: C4H10O  
 Molecular Weight: 74.12

\*\*\*\* SECTION 10 - STABILITY AND REACTIVITY \*\*\*\*

Chemical Stability:

Stable under normal temperatures and pressures. Prolonged exposure to air and sunlight may form unstable peroxides.

Conditions to Avoid:

Incompatible materials, light, ignition sources, exposure to air, excess heat, strong acids, exposure to moist air or water, oxidizers.

Incompatibilities with Other Materials:

Strong oxidizing agents, bromine trifluoride, chlorine trifluoride, halogens, nitric acid, permanganates, silver perchlorate, sodium peroxide, sulfur, sulfuric acid, hydrogen peroxides, ozone, bromine, chromyl chloride, fluorine nitrate, nitrosyl perchlorate, bromine pentafluoride, perchloric acid, chromic anhydride, interhalogens, chlorine, uranyl nitrate, moisture, air, iodine heptafluoride, boron triazide, wood pulp extracts + heat, acetyl peroxide, bromoazide, potassium peroxide, triethyl or trimethyl aluminum + air, lithium aluminum hydride, thiotriazyl perchlorate, nitryl perchlorate, permanganic acid, peroxodisulfuric acid, iodine (VII) oxide, Sulfonyl chloride, liquid air.

Hazardous Decomposition Products:

Carbon monoxide, irritating and toxic fumes and gases, carbon dioxide, peroxides.

Hazardous Polymerization: Will not occur.

\*\*\*\* SECTION 11 - TOXICOLOGICAL INFORMATION \*\*\*\*

RTECS#:

CAS# 60-29-7: KI5775000

LD50/LC50:

CAS# 60-29-7: Inhalation, mouse: LC50 =6500 ppm/99M; Inhalation, rat: LC50 =73000 ppm/2H; Oral, rat: LD50 = 1215 mg/kg.

Carcinogenicity:

Ethyl ether -

Not listed by ACGIH, IARC, NIOSH, NTP, or OSHA.

Epidemiology:

No information available.

Teratogenicity:

No information available.

Reproductive Effects:

No information available.

Neurotoxicity:

No information available.

Mutagenicity:

DNA Repair: Escherichia coli = 35670 ug/well/16H.; DNA Inhibition: Mouse, Embryo = 2850 mg/L.; Mutation Test Systems - not otherwise specified: Hamster, Fibroblast = 1 pph.

Other Studies:

Open Irritation Test: Administration onto the skin (rabbit) = 360 mg (Mild). Standard Draize Test: Administration into the eye (rabbit) = 100 mg (Moderate). Standard Draize Test: Administration onto the skin (rabbit) = 50 mg/24H (Severe). Standard Draize Test: Administration into the eye (human) = 100 ppm.

\*\*\*\* SECTION 12 - ECOLOGICAL INFORMATION \*\*\*\*

Ecotoxicity:

Fish: Fathead Minnow: LC50 = 2600 mg/L; 96 Hr; Flow-through bioassay  
Fish: Bluegill/Sunfish: LC50 >10000 mg/L; 96 Hr; Static bioassay  
Bacteria: Phytobacterium phosphoreum: EC50 = 5625 mg/L; 15 min; Microtox test  
If ethyl ether is released to soil, it will be subject to volatilization. It will be expected to exhibit high mobility in soil and, therefore, it may leach to groundwater. If ethyl ether is released to water, it will not be expected to significantly adsorb to sediment or suspended particulate matter, bioconcentrate in aquatic organisms or hydrolyze.

\*\*\*\* SECTION 13 - DISPOSAL CONSIDERATIONS \*\*\*\*

Chemical waste generators must determine whether a discarded chemical is class if as a hazardous waste.

US EPA guidelines for the classification determination are listed in 40 CFR Part Additionally, waste generators must consult state and local hazardous waste regu ensure complete and accurate classification.

RCRA P-Series: None listed.

RCRA U-Series: CAS# 60-29-7: waste number U117; (Ignitable waste).

\*\*\*\* SECTION 14 - TRANSPORT INFORMATION \*\*\*\*

US DOT

Shipping Name: ETHYL ETHER

Hazard Class: 3

UN Number: UN1155

Packing Group: I

Canadian TDG

Shipping Name: ETHYL ETHER

Hazard Class: 3

UN Number: UN1155

Other Information: FLASHPOINT -45 C

\*\*\*\* SECTION 15 - REGULATORY INFORMATION \*\*\*\*

US FEDERAL

TSCA

CAS# 60-29-7 is listed on the TSCA inventory.

Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

Section 12b

None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule

None of the chemicals in this material have a SNUR under TSCA.

SARA

Section 302 (RQ)

CAS# 60-29-7: final RQ = 100 pounds (45.4 kg)

Section 302 (TPQ)

None of the chemicals in this product have a TPQ.

SARA Codes

CAS # 60-29-7: acute, flammable, sudden release of pressure,

reactive.

Section 313

No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA:

None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

Ethyl ether can be found on the following state right to know lists:

California, New Jersey, Florida, Pennsylvania, Minnesota,

Massachusetts.

California No Significant Risk Level:

None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: F+

Risk Phrases:

R 12 Extremely flammable.

R 19 May form explosive peroxides.

Safety Phrases:

S 9 Keep container in a well-ventilated place.

S 16 Keep away from sources of ignition - No smoking.

S 29 Do not empty into drains.

S 33 Take precautionary measures against static discharges.

WGK (Water Danger/Protection)

CAS# 60-29-7: 1

United Kingdom Occupational Exposure Limits

CAS# 60-29-7: OES-United Kingdom, TWA 400 ppm TWA; 1230 mg/m3 TWA

CAS# 60-29-7: OES-United Kingdom, STEL 500 ppm STEL; 1540 mg/m3 STEL

Canada

CAS# 60-29-7 is listed on Canada's DSL/NDSL List.

This product has a WHMIS classification of B2, D2B.

CAS# 60-29-7 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

CAS# 60-29-7: OEL-AUSTRALIA:TWA 400 ppm (1200 mg/m3);STEL 500 ppm (1500 mg/m3)

OEL-AUSTRIA:TWA 400 ppm (1200 mg/m3)

OEL-BELGIUM:TWA 400 ppm (1210 mg/m3);STEL 500 ppm (1520 mg/m3)

OEL-CZECHOSLOVAKIA:TWA 500 mg/m3;STEL 1500 mg/m3

OEL-DENMARK:TWA 400 ppm (1200 mg/m3)

OEL-FINLAND:TWA 400 ppm (1200 mg/m3);STEL 500 ppm (1500 mg/m3)

OEL-FRANCE:TWA 400 ppm (1200 mg/m3);STEL 500 ppm (1500 mg/m3)

OEL-GERMANY:TWA 400 ppm (1200 mg/m3)

OEL-HUNGARY:TWA 300 mg/m3;STEL 600 mg/m3;Skin

OEL-JAPAN:TWA 400 ppm (1200 mg/m3)

OEL-THE NETHERLANDS:TWA 400 ppm (1200 mg/m3) JAN9  
OEL-THE PHILIPPINES:TWA 400 ppm (1200 mg/m3) JAN9  
OEL-POLAND:TWA 300 mg/m3  
OEL-RUSSIA:TWA 400 ppm;STEL 300 mg/m3  
OEL-SWEDEN:TWA 400 ppm (1200 mg/m3);STEL 500 ppm (1500 mg/m3)  
OEL-SWITZERLAND:TWA 400 ppm (1200 mg/m3);STEL 800 ppm  
OEL-TURKEY:TWA 400 ppm (1200 mg/m3)  
OEL-UNITED KINGDOM:TWA 400 ppm (1200 mg/m3);STEL 500 ppm  
OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV  
OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

\*\*\*\* SECTION 16 - ADDITIONAL INFORMATION \*\*\*\*

MSDS Creation Date: 6/02/1999 Revision #3 Date: 8/02/2000

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect To such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

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